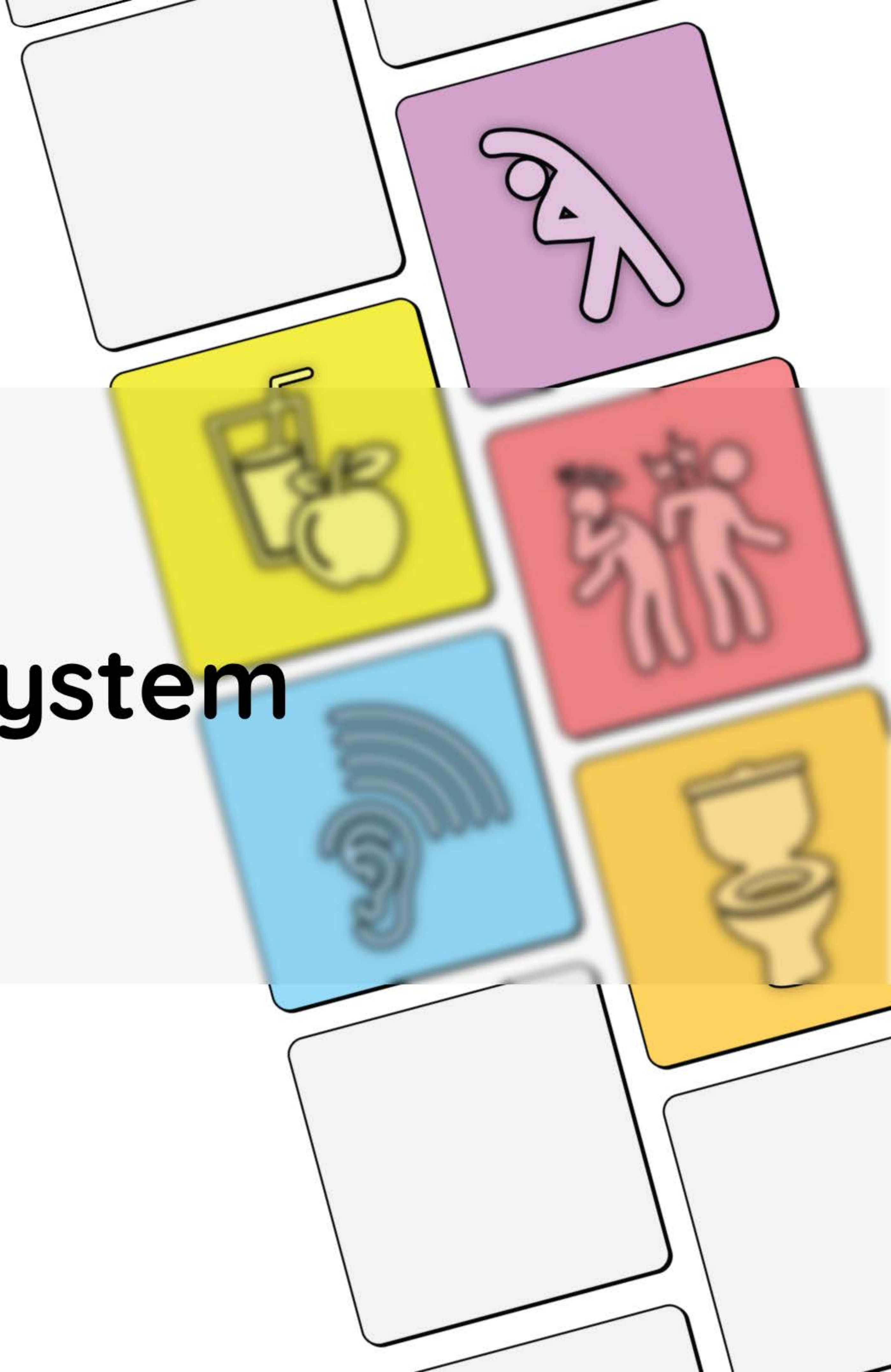


A Modern Call Light System Concept



Role

UX/UI Designer (Solo Project)

Responsible for user research, secondary research, persona development, wireframing, and final design.

This was a solo, hypothetical project designed to demonstrate my full stack UX/UI skills.

Overview

A Modern Call Light System

Helping Make Informed & Prioritized Decisions
About Patient Calls.

This prototype proposal introduces an innovative application designed to replace traditional bedside call buttons in hospital and healthcare settings. The app's primary objective is to enhance both medical staff and patient experiences by effectively communicating prioritized patient requests to medical staff, thereby improving the overall quality of care. It achieves this by systematically evaluating the severity and practicality of patient needs based on patient defined expectations, medical staff defined urgency, and a collaborative focus on achieving healthy outcomes.

Inpatient healthcare settings need intelligent prioritization and triage capabilities in nurse call systems to reduce staff workload, improve patient safety outcomes, and enhance care quality by enabling real time, context aware decision support for staff that integrates seamlessly with existing systems and goes beyond simple time based queuing.

As the post digital generation ages, this app leverages touchscreen technology and digitized call systems to facilitate efficient communication between patients and nursing staff. Patients can contact nurses through a series of simple prompts, while the app employs a triage system to manage requests, especially when staff are managing multiple patients. This system allows medical staff to prioritize care based on factors such as patient capabilities, cognitive levels, and diagnosis severity, ensuring critical needs are addressed first.

Problem Statement

How might we help Patients and Medical Staff overcome the constraints of when a basic “call light” button does not allow any types of prioritization besides length of time since “call” was triggered -thus making it hard for medical staff to know how to prioritize attention and attendance in order to achieve having quality healthcare and positive patient satisfaction.

User Research

Interviews

Medical Staff

Users expressed an interest in resources that could help facilitate support their decision making process, but not overtake it completely.

Within inpatient floors there typically is a Health Unit Coordinator that is assigned to the nursing station to help direct tasks towards nurses and aides after a patient hits a call button. The coordinator utilizes a different set of parameters every day because patients are given a new stability rating after each nursing shift -thus limiting flexibility in the call light systems structure.

Unanimously, the individuals shared similar experiences of loud, possibly distracting environments, certain communication gaps between the patient and direct care professional, and call light limitations such as “first come first serve”,

Patient

User expressed an interest in a resource that could promote urgency when waiting for pain medications.

They overall were very understanding of the understaffed nature in healthcare settings but emphasized there were times when they were “not quite as fast as I would like them to be.” and suggested the possibility of a patient facing app.

Specialized Research Approaches Include

Secondary Research From Data & Studies

Overwhelming Workloads

According to secondary research when medical staff have overwhelming workloads, quality and safety of care for patients diminishes, and emotional exhaustion runs rampant.

Why Does Emotional Exhaustion Matter?

- 1.) Because we love & care about our healthcare workers.
- 2.) Emotional exhaustion impacts the quality & safety of patient care negatively.

Why Does Quality & Safety of Care Matter?

When quality of care and patient safety are jeopardized, patients face increased risk of medical errors, healthcare-associated infections, complications, and preventable deaths, with the WHO reporting that 1 in 10 patients is harmed in healthcare settings. This creates a cascade of negative effects including higher healthcare costs, healthcare worker burnout and turnover, and erosion of patient trust in the healthcare system. The consequences perpetuate a cycle where poor outcomes lead to decreased resources and further quality deterioration.

Competitive Analysis

Healthcare Communication Applications

Ascom

Offers interoperable smart nurse call solutions that gather data from various sources and provide context rich alerts to clinicians.

West Com, Amplion, Vocera

Provide integrated platforms with patient engagement solutions, automated routing, and real time notifications to staff devices.

Mount Sinai Health System

Successfully integrated IoT devices, EHRs, and RTLS with their nurse call system, resulting in faster response times, reduced errors, and operational cost savings.

Connect Health

Enables integration with smartphones, tablets, and touchscreens for real time reporting and decision making.

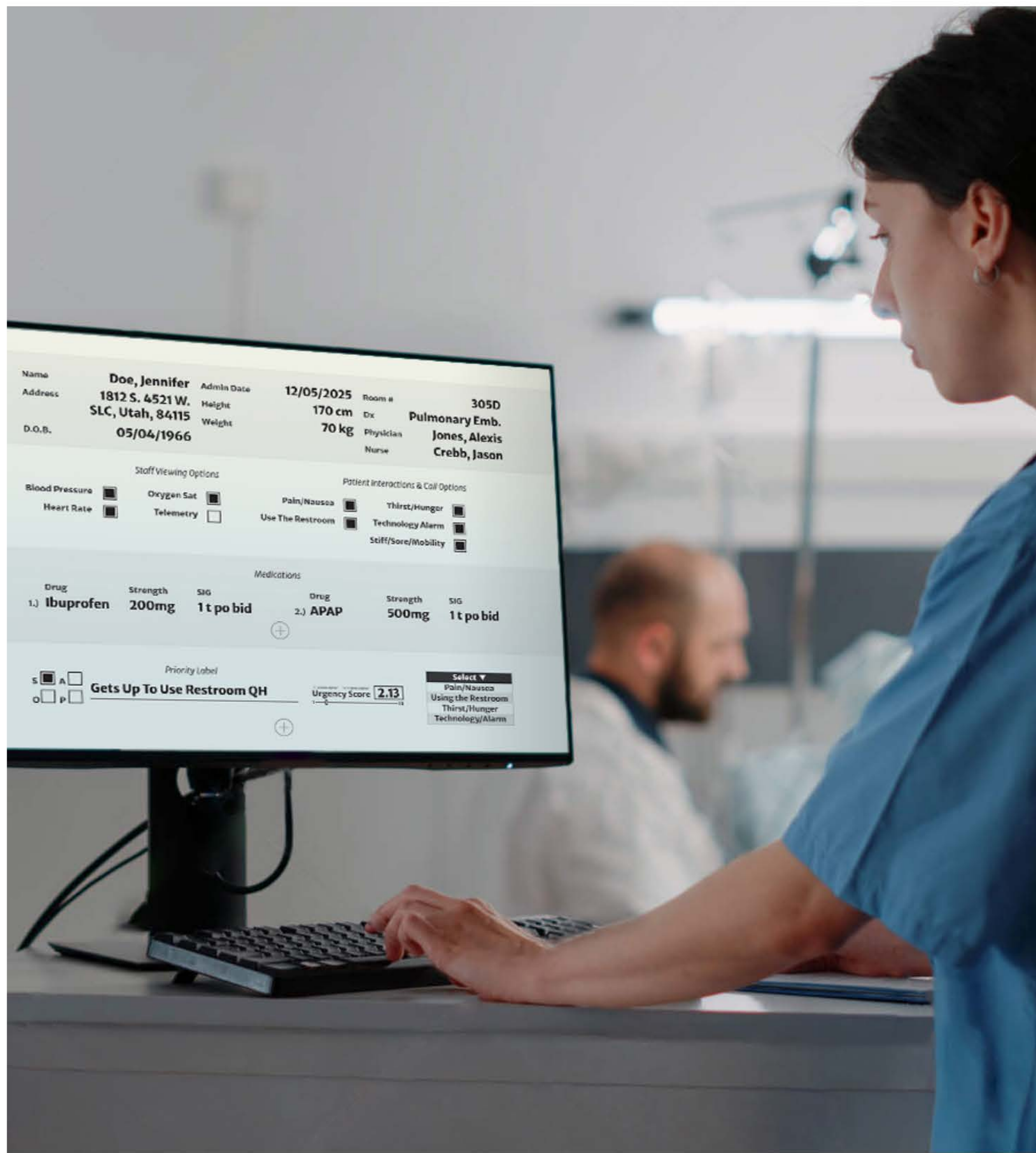
This Modern Call Light System

The Difference

Context Aware Emphasized By Medical Staff

While competitors offer system integration, this real time, context aware decision support adapts to individual patient profiles and current care contexts goes beyond simple data connectivity.

Medical Staff will be able to triage each patient need by using and adjusting patient qualitative data (such as a pain call light) alongside quantitative data (urgency level of call).



Pain Points

Based on User & Secondary Research

Users Say

Reduced responsiveness increases stress.

There is a need for better personalized technology.

Call lights are ineffective.

There is a desire for clarity, status & structure.

Jessica Martinez

Patient-focused, organized, growth-oriented, empathetic



"Every patient deserves compassion and respect."

Age: 32

Education: BSN, Registered Nurse

Family: Married, 1 Child

Archetype: The Compassionate Leader

Bio

Jessica is a Hispanic registered nurse with 9 years of experience who leads with her heart. Armed with her BSN and a passion for patient advocacy, she manages daily operations as a Charge Nurse while maintaining deep empathy for every patient under her care. As a married mother earning \$85,000 annually, she balances family life with career ambitions, finding fulfillment in yoga, reading, and volunteering.

Primary Goals:

Ensure optimal patient outcomes while maintaining compassionate care standards.

Advance her nursing career without compromising family time.

Balance patient advocacy with operational efficiency.

Mentor new nurses effectively despite time constraints.

Interests:

Yoga

Reading

Volunteering

Scenario

On Tuesday at 2:48 PM, charge nurse Jessica manages four patient calls by customizing then utilizing the prioritization system. She sees Jennifer Doe's **high priority** pain/nausea alert and responds first, followed by S. Steele's **medium priority** restroom request to prevent a fall. Jessica then quickly resolves C. Henderson's **low priority** I.V. alarm, then saving H. Jackson's dietary need for last. This medical urgency approach alleviates pain quickly, boosts patient safety, and streamlines care.

Pain Points

Chronic understaffing forces her to manage patient loads 20-30% above safe ratios, creating constant anxiety about patient safety.

12+ hour shifts become 14-15 hours due to documentation requirements, leaving minimal time for family.

Caught between administration and frontline staff - pressured to enforce cost cutting measures while maintaining quality care standards.

Missed family milestones due to mandatory overtime and emergency calls during off-hours.

Language barriers with Hispanic patients who expect cultural understanding, but time constraints limit meaningful connection.

Evelyn Thompson

Patient, hopeful, independence-focused, gentle



"I just want to get back to my garden."

Age: 76

Education: High School

Family: Widowed, 3 Children

Archetype: The Independent Gardener

Bio

Evelyn is a widowed grandmother of three whose 40-year teaching career instilled in her both patience and hope. Her greatest joy comes from tending her garden, a simple pleasure that represents the independence she's determined to regain. Despite mobility challenges and relying on just a basic cell phone with a pension income of \$30,000, this resilient woman approaches her recovery with gentle persistence.

Primary Goals:

Restore mobility for personal fulfillment and return to gardening.

Regain independence to avoid burdening her children.

Maintain connection to her deceased husband's memory through garden care.

Navigate healthcare system despite technology limitations.

Interests:

Gardening

Scenario

At 3:15 PM, Evelyn faces pain and needs restroom help but isn't tech savvy. She uses her tablet's simple, icon based interface to select both needs at once. The system confirms assistance is on the way, displays wait time, and offers real time updates. Her nurse Jessica sees Evelyn's multiple priority call—pain plus mobility issue—and rapidly attends, preventing a fall and easing discomfort through prompt, technology enabled response.

Pain Points

Mobility limitations preventing her from reaching garden beds, causing emotional distress about losing her life's passion.

Basic cell phone limitations prevent her from accessing care coordination apps, appointment scheduling, or therapy resources.

Fixed pension income limiting access to private physical therapy, equipment modifications, or home care services.

Loss of purpose as gardening provided meaning, identity, and connection to her deceased husband's memory.

Digital divide isolation as healthcare moves increasingly online, making her feel excluded from modern care options.

Workflow

Current vs Ideal

First Come First Serve

This graphic visualizes a current workflow in parallel of an ideal workflow for a call light system in an inpatient care setting.

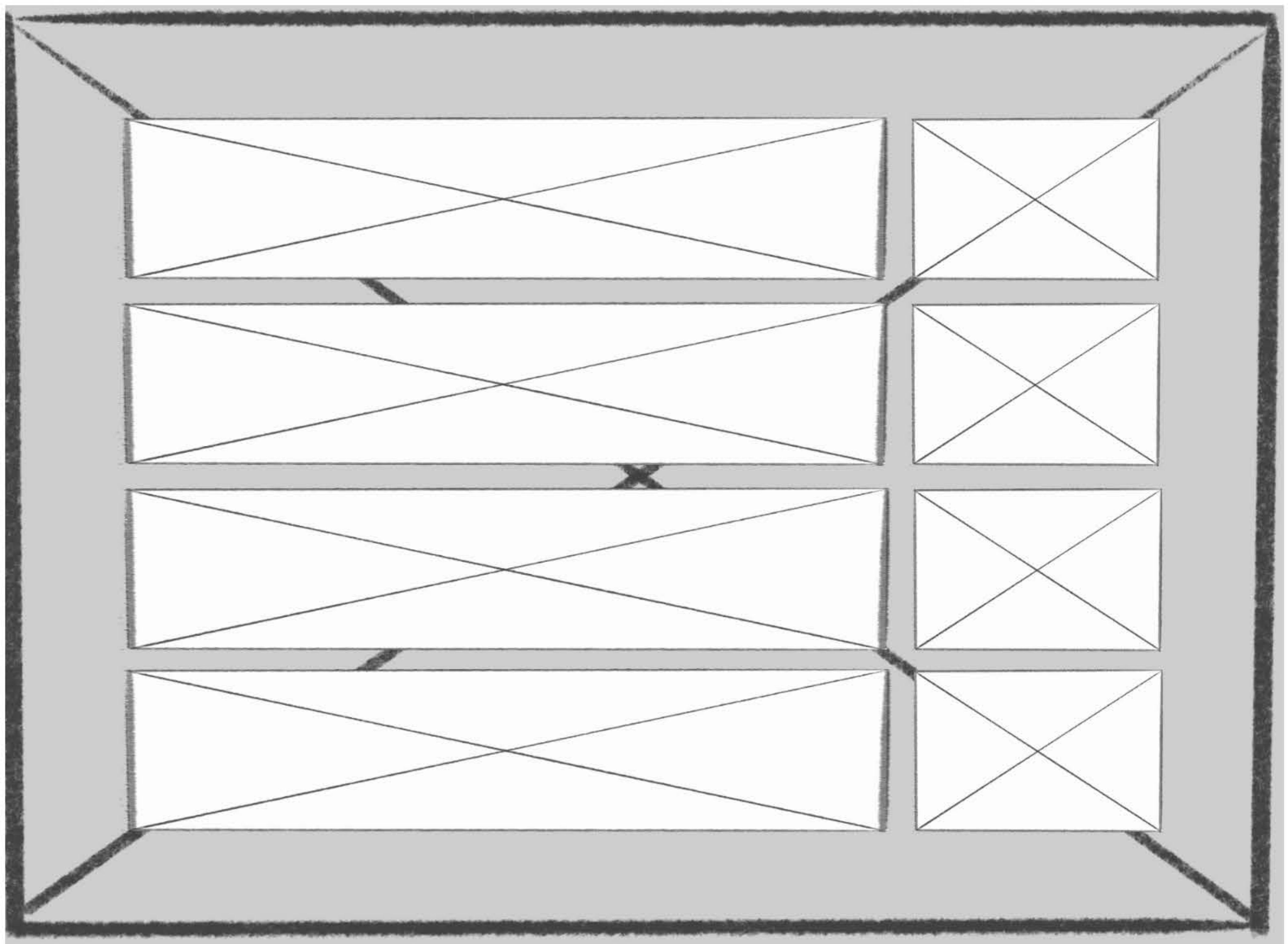
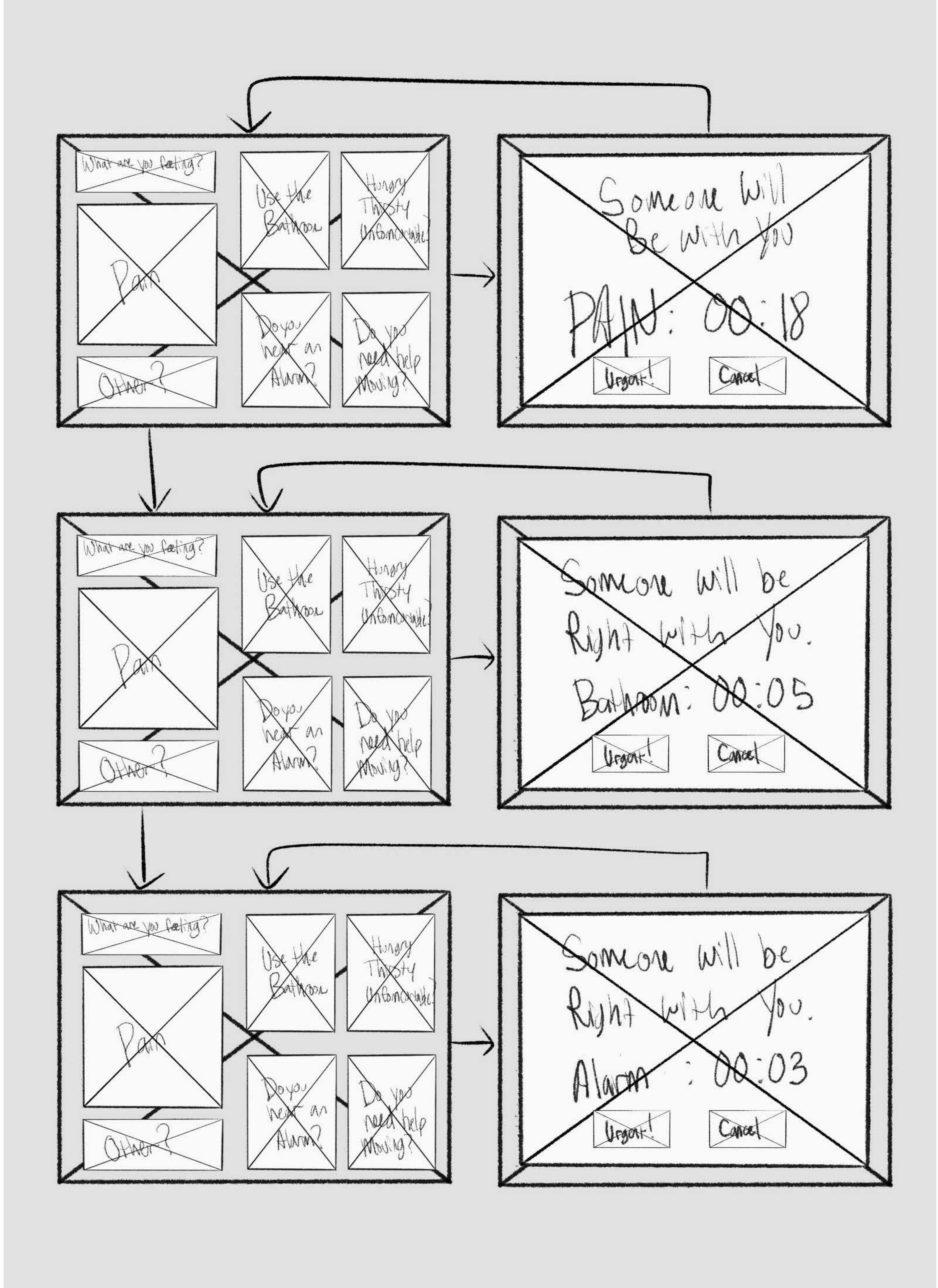
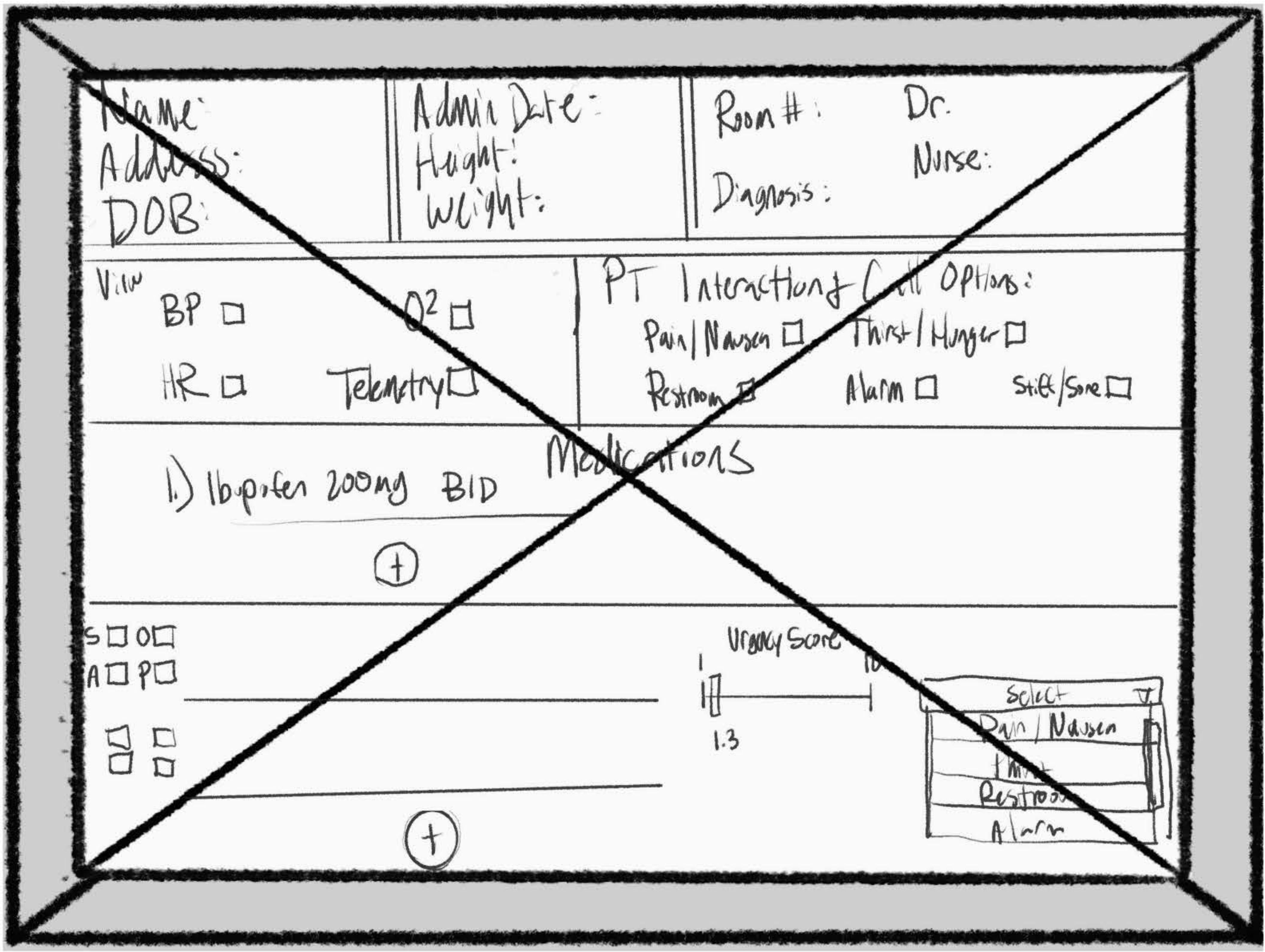


Wireframes

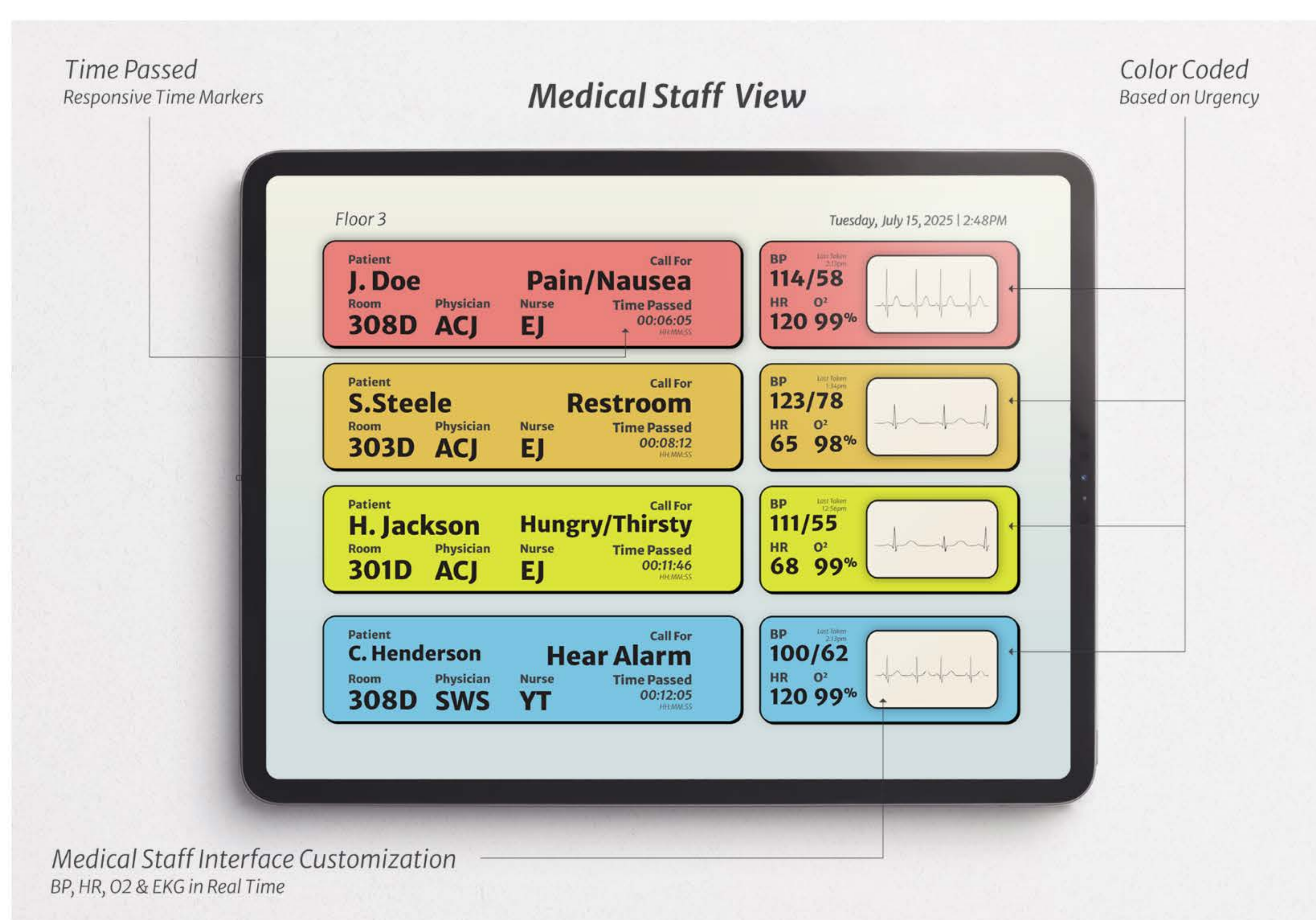
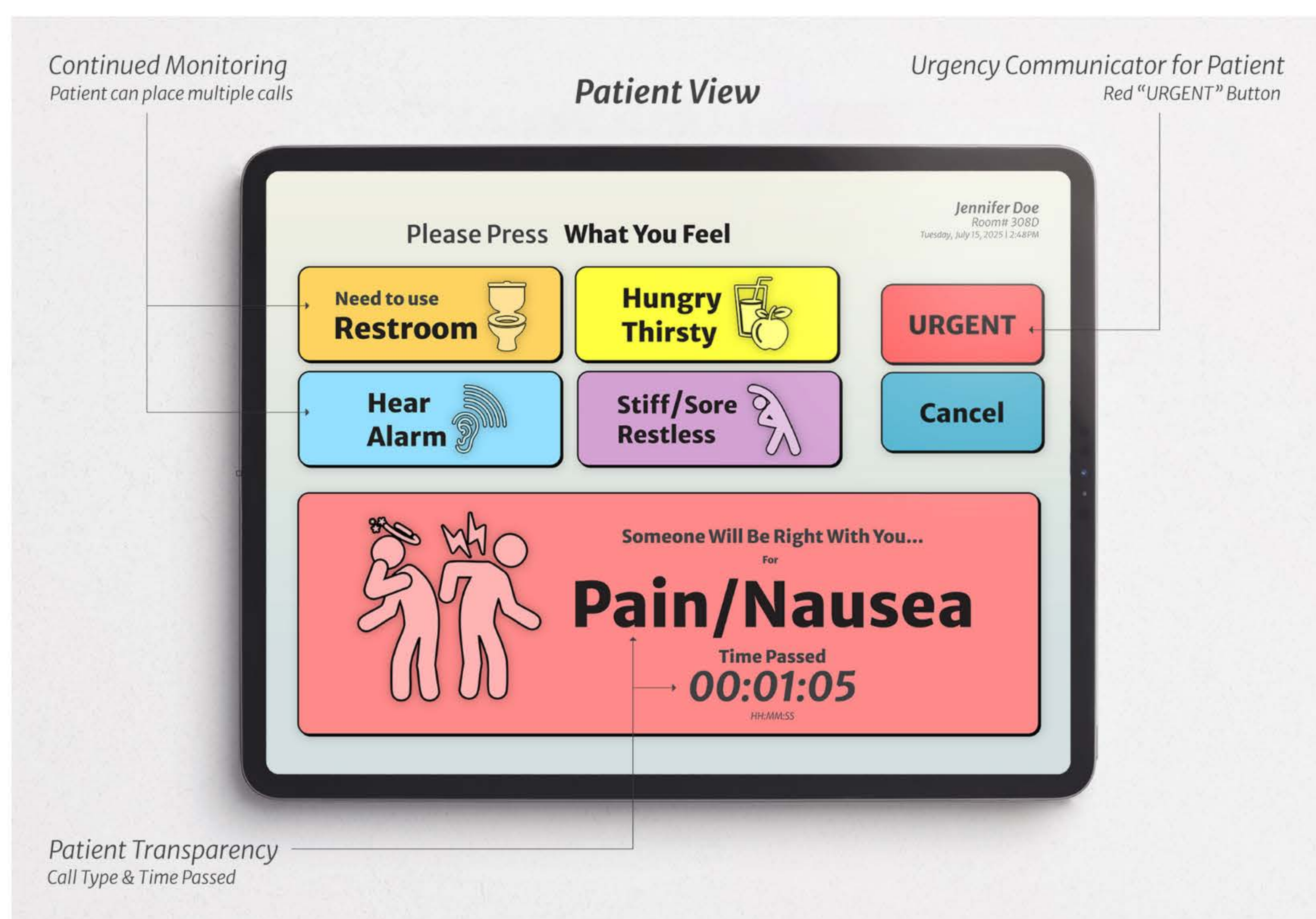
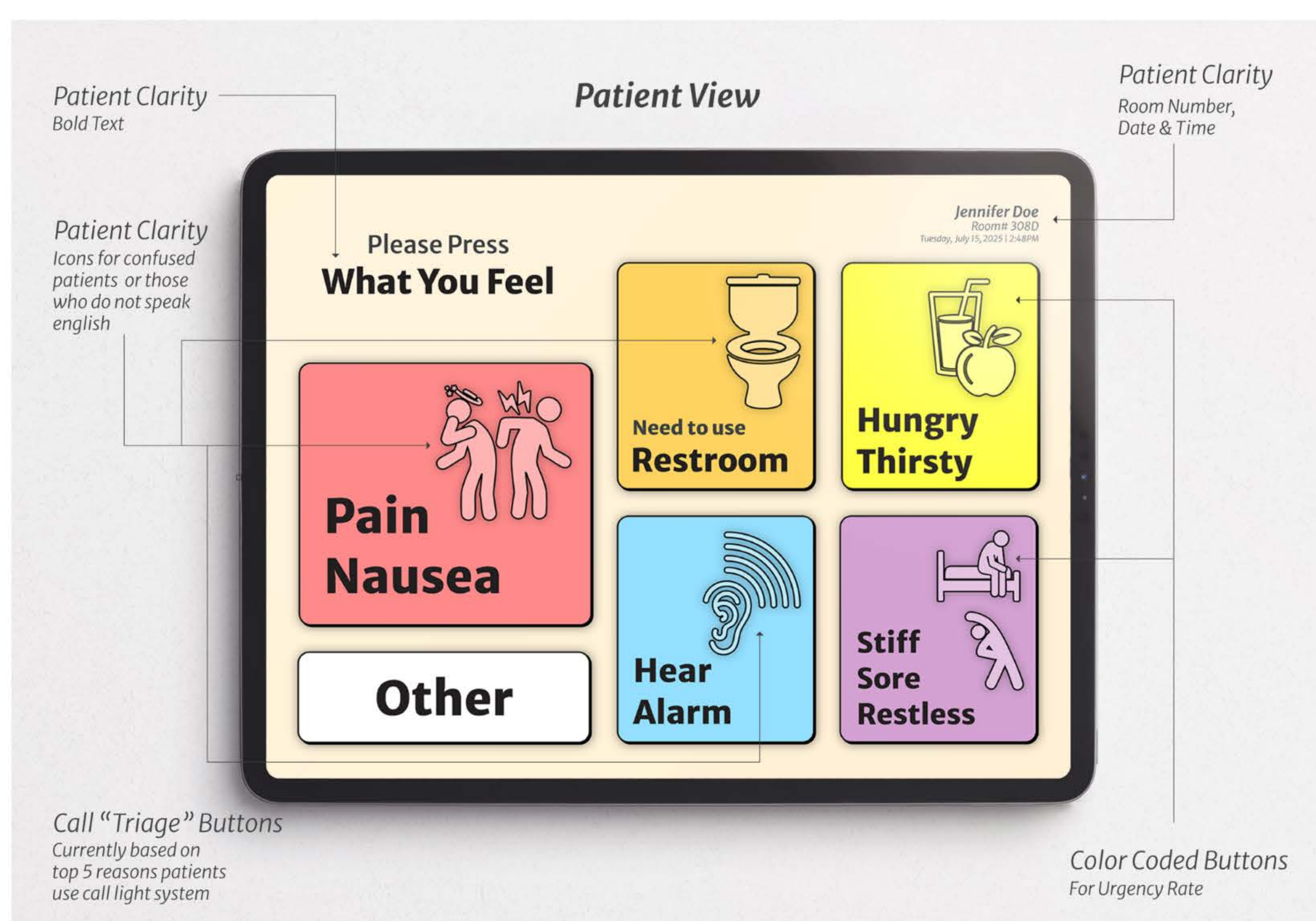
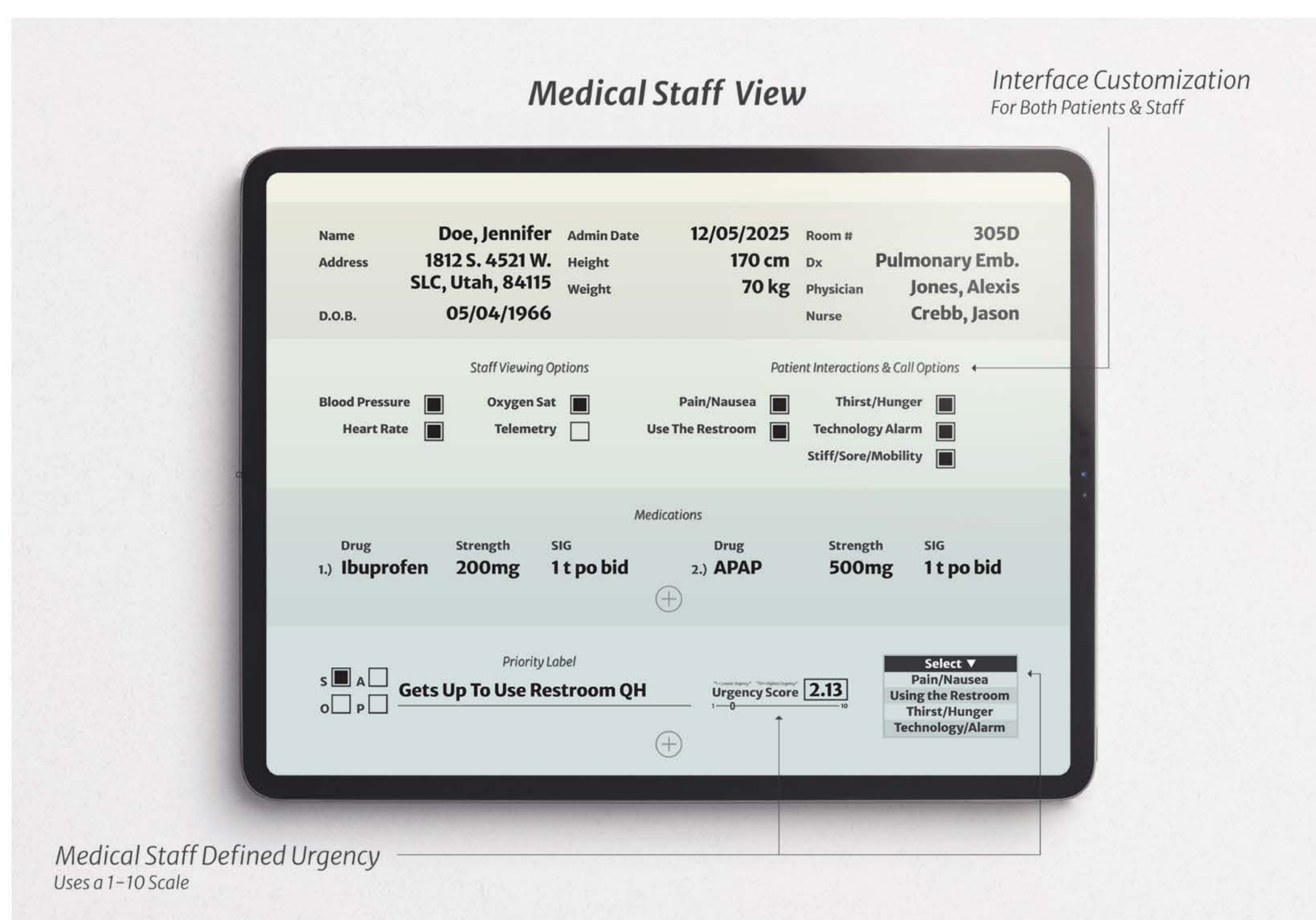
Visualization

Sketches on iPad

These sketches were the rough drafts of a final design. I generally emphasize the information I am looking to communicate within the design, along with visualizing the layout for users.



Final Visual Design



Conclusion

Customized Care Is Necessary For The Future

Healthcare staff and patients both want what is necessary for the patient alongside preventing staff burnout. With future testing, this app has the potential to offer a solution for high quality communication on behalf of both medical staff and patient their well being.